

**INTRODUCTION:**

In accordance with the foregoing, claims 1, 5-10, 12, and 24 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-12 and 18-26 are pending and under consideration.

**CLAIM OBJECTIONS:**

In the Office Action, at page 2, claims 6-10 and 12 were objected. In view of the amendments presented to claims 6-10 and 12 addressing the objections, it is respectfully requested that the objections to the claims be withdrawn.

**REJECTION UNDER 35 U.S.C. § 112:**

In the Office Action, at page 2, claims 5 and 9 were rejected under 35 U.S.C. § 112, second paragraph, for the reasons set forth therein. In view of the amendments presented to claims 5 and 9 addressing the claim rejections, it is respectfully requested that the rejections to the claims be withdrawn.

**REJECTION UNDER 35 U.S.C. § 102:**

*In the Office Action, at page 3, claims 1-12 were rejected under 35 U.S.C. § 102 in view of U.S. Patent No. 6,407,976 to Nagara et al. ("Nagara"). This rejection is traversed and reconsideration is requested.*

According to Nagara, describes a laser light having a power corresponding to each of the spaces and marks, respectively. See column 1, lines 45-60. However, Nagara fails to teach or suggest that a mark is formed "using a multiple pulse train comprising a first pulse, a multi-pulse having a peak power level, and a last pulse" and "controlling power levels of the first and last pulses with respect to the peak power level of the multi-pulse depending on a correlation between a mark and a space between successive marks," as recited in independent claim 1. Nagara limits its description to vaguely referring to the laser light having the power corresponding to each of the spaces and marks but nothing is taught or suggested as to using a multiple pulse train and controlling the power levels particular pulses, such as the first and last pulses. Further, Nagara is silent as to teaching or suggesting, "setting the power level of the first pulse depending on the correlation between the mark and the space; setting the power level of the last pulse depending on the correlation between the mark and the space; and

driving a recording unit by the multiple pulse train having the set power levels of the first and last pulses,” as recited in independent claim 1. Nagara fails to describe how the laser light has the power corresponding to each of the spaces and marks.

In addition, column 3, line 30, to column 4, line 53, of Nagara describes a process of writing a space 3 and a mark 4 onto a recording surface of an optical disc using an erasing power  $P_E$  and a writing power  $P_W$ , respectively. Nagara indicates that a power of a laser light irradiated onto the recording surface falls from the writing power  $P_W$  down to the erasing power  $P_E$ , where a return amount of the reflected laser light from the optical disc shows as an undershoot 6. See FIG. 1C of Nagara. The undershoot 6 takes place because the focused spot 5 of the laser light of the erasing power  $P_E$  momentarily overlaps the low-reflectivity mark 4 having just been written. However, the first pulse and the last pulse of independent claim 1 are from the multiple pulse to form the mark. Specifically, Nagara fails to teach or suggest, **“forming a mark using a multiple pulse train comprising a first pulse, a multi-pulse having a peak power level, and a last pulse; controlling power levels of the first and last pulses with respect to the peak power level of the multi-pulse depending on a correlation between a mark and a space between successive marks,”** emphasis added, as recited in independent claim 1.

Nagara appears to recognize the undershoot 6 that occurs **between the mark 4 and the space 3** due to the different power levels. However, the first pulse and the last pulse of independent claim 1 are from the multiple pulse to form the mark. Nagara fails to teach or suggest, **“setting the power level of the first pulse depending on the correlation between the mark and the space; setting the power level of the last pulse depending on the correlation between the mark and the space; and driving a recording unit by the multiple pulse train having the set power levels of the first and last pulses,”** emphasis added, as recited in independent claim 1. Once again, the first and the last pulse correspond to the multi-pulse forming the mark. Accordingly, it is respectfully asserted that Nagara fails to anticipate all the claimed features of independent claim 1. It is respectfully requested that independent claim 1 and related dependent claims be allowed.

*In the Office Action, at page 5, claims 18-26 were rejected under 35 U.S.C. § 102 in view of U.S. Patent No. 6,160,784 to Maeda et al. (“Maeda”). This rejection is traversed and reconsideration is requested.*

Maeda generally describes recording a mark with the rising and falling edges varied based on previously recorded data. See abstract. In the multi-pulsed energy beam, the first and last light pulses are referred to as the head or first and tail or last pulses respectively. See

column 4, lines 43-67 of Maeda. Between the head and tail pulses, light pulses are repeated between the write level and bias level 3. When it is desired to form a second state area for the NRZI signal having a length of 5Tw or more, the recording pulse is made up of the head, comb-shaped and tail pulses. When it is desired to form a second state area for the NRZI signal having a length of 4Tw, the recording pulse is made up of the **head and tail pulses**. When it is desired to form a second state area for the NRZI signal having a length of 3Tw, the recording pulse is made up of a single pulse. A power level equal to or lower than the bias level 1 and equal to or higher than the bias level 3 is set and is referred to as the bias level 2. See column 5, lines 1-27 of Maeda. Following the tail pulse for 4Tw or more and following the write light pulse for 3Tw, the power level of the energy beam is held at the bias level 2 for a predetermined time.

However, Maeda is silent as to teaching or suggesting, "method of controlling recording a signal on an optical disc using multiple pulse trains comprising a first multi-pulse train having a first pulse, a multi-pulse having a reference power level, and a last pulse, the method comprising: controlling the power level of said last pulse independent of the power level of said first pulse," as recited in independent claim 18. Although Maeda does appear to describe variations of the recording pulses and that the times defining the write pulse as not always limited to having constant values (See column 6, lines 16-35 of Maeda), Maeda fails to teach or suggest, "controlling the power level of said last pulse **independent** of the power level of said first pulse," emphasis added, as recited in independent claim 18.

In addition, Maeda fails to teach or suggest, "providing a different reference power level to each multi-pulse train **depending on the energy or density** of a non-return-to-zero inverted (NRZI) signal detecting a correlation between a current mark and a space between successive marks," emphasis added, as recited in independent claim 24. Nagara does appear to recognize that the power level of the energy beam may be held at a bias level 1, 2, or 3. However, nothing in Nagara teaches or suggest that the different power levels may be different "depending on the energy or density of a non-return-to-zero inverted (NRZI) signal detecting a correlation between a current mark and a space between successive marks," as recited in independent claim 24.

Accordingly, it is respectfully asserted that Nagara fails to anticipate all the claimed features of independent claims 18 and 24. It is respectfully requested that independent claims 18 and 24 and related dependent claims be allowed.

**CONCLUSION:**

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance, which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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